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high, they succeeded in tracing the great river to its ice-bound head in a basin 16,000 feet above the sea.

Dr. Stein then followed the great snowy range which he had found flanking the Khotan headwaters on the southeast and south to its end in the uppermost valley of the Keriya River, and then began the exploration of the hitherto unsurveyed ground westward.

This area figures on most maps as a high plain called the Aksai-chin Desert. It proved to be of a different character. High snow-covered spurs, with broad valleys between them, descend here from the great range flanking the Khotan. The streams brought down by these valleys rarely reach the large lakes and marshes at the foot of these spurs, but in most cases lose themselves in vast alluvial fans of detritus above the depressions which connect the lakes and marshes. The direction of these depressions, all of which bear signs of having been ancient lake beds running from east to west, greatly facilitated progress, but vegetation almost completely disappeared, and soon fresh water ceased to be obtainable except by digging wells in dry water courses, and the result was that nearly one-third of the pack animals were lost.

On the last day of his long labours, Dr. Stein found himself completely disabled by severely frostbitten feet. He was carried on a litter to Leh, on the edge of civilization, where an operation was performed, and it is hoped that the unfortunate accident will lead to no permanent inconvenience. His heavy caravan of antiques safely arrived at the foot of the Karakorum. Rai Ram Singh had succeeded in mapping no less than 17,000 square miles of mountainous ground. It is expected that, early this year, Dr. Stein will be seen again in Europe.

GEOGRAPHICAL RECORD.

AMERICA.

Driftwood Near the Mackenzie Delta.—Mr. Alfred H. Harrison, in his recent book "In Search of a Polar Continent," says that the shore of the Arctic Ocean, from Herschel Island to Cape Brown, is piled many feet high with drift wood which has floated down the Mackenzie River. Whole trees, bared of their bark and branches, but otherwise intact as when they stood in their native forest, lie spread, root and bole, along this shore. Some of them measure 100 ft. in length, and trunks which are long enough for spars or masts are plentifully strewn around. There are likewise many knotty pieces that the whale-fishers convert into useful furniture, which, when polished, are even more glossy and handsome than oak. When the ships get out of fuel, gangs of men are sent to the coast to cut cords of wood for their whaling cruises.

DEVILS LAKE, N. D.—The U. S. A. Bureau of Fisheries (No. 634) prints a study of Devils Lake, N. D., in which the lake is said to be still in process of drying up and now has neither inlet nor outlet except after rain or floods. Desiccation has been especially well marked during the last twenty-five years. The lake formerly received a large tributary which drained a series of lakes whose waters were remarkably fresh as compared with those of Devils Lake. During the years 1884-87, when the lake was high, this tributary flowed throughout the year. Formerly also, the lake was remarkable for its wealth in pickerel, which supplied an extensive trade in fish and was the cause of various settlements in the vicinity of the lake. Specially abundant in the years 1884-87, the fish suddenly decreased thereafter, the last being caught in 1889. Since that date Devils Lake has yielded no food fish, though an attempt is now being made to restock it. It is believed that the drying up of the large tributary was chiefly the cause of the disappearance of the fish. They were apparently unable to spawn in the alkaline water of Devils Lake, and the disappearance of the tributary deprived them of the power of migrating to the other and fresher lakes of the chain for spawning purposes. This instance affords a definite example of the sudden disappearance of an important food supply, a circumstance that under primitive conditions of life would be likely to bring about a series of related changes.

RED TILL IN WISCONSIN.—In a preliminary publication, Dr. W. C. Alden has described a small part of the area of 8,600 square miles in southeastern Wisconsin, where he has been mapping the glacial geology in detail. (Milwaukee Special Folio, Wisconsin, Geologic Atlas of the United States, No. 140, 1906.) The conditions in this quadrangle are typical of those over an extended area, and the red till which forms part of the glacial drift is of especial interest.

The red till is an extremely fine silt, beautifully laminated in its lower portions and massive above. Through it are scattered small, angular, striated, foreign glacial pebbles. Its surface form is that of long billowy ridges, with the higher and steeper side toward Lake Michigan. It overlies older till, and is practicably unweathered.

Dr. Alden explains this deposit as a glacial-lake silt ridged up by a subsequent glacial advance, an explanation quite different from the earlier one of Chamberlin. Later studies further northward in 1907 and 1908 show the red till moraines obliquely to overlie an earlier morainic system and to be present in the Green Bay-Lake Winnebago Valley, amply supporting Alden's explanation of the origin of this deposit as seen in the Milwaukee area. L. M.

AFRICA.

MR. CHURCHILL'S MISTAKE.—Mr. Winston Churchill, of England, in his new book, "My African Journey," gives a graphic account of Speke's discovery of the Nile as it issues from Speke Gulf, Victoria Nyanza. The author refers to "the luck which led Speke to his thrilling discovery of the source of the Nile." He goes on to say:

> There are 500 gulfs and inlets on the northern shore of Lake Victoria and nothing distinguishes this one [*i. e.*, the gulf from which the Nile issues] from the rest. . . . The explorer might have searched for a year without finding this spot. Instead of which he drifted and paddled gently along until all of a sudden the murmur of a distant cataract and the slight acceleration in the pace of his canoe drew him to the long-sought birthplace of the most wonderful river in the world.

The demerit of this description is its absolute inaccuracy. A reference to Speke's "Journal of the Discovery of the Source of the Nile" would have shown Mr. Churchill that the discovery was not brought about in so haphazard a manner. The truth is, that Speke did not make the journey to the source of the Nile by water, but on foot. From the capital of Uganda he was guided eastward over the land by subjects of King Mtesa as far as the Nile and then ascended the left bank of the river until he reached Ripon Falls, where the lake has its outlet and the great river begins.

THE PLOW FOR AFRICAN NEGROES.—According to the *Koloniale Zeitschrift* (No. 27, 1908), a movement is on foot in the colonies of Togo and German East Africa to substitute the plow for hoe cultivation among the natives. In the annual *Report* on German East Africa (1906-7) the question was discussed and the view expressed that the introduction of the plow is very important and may be brought about by gradually providing yokes of oxen and plows and giving the essential training. The cost would be considerable, but the outlay would in time be repaid through the ability of the natives to raise a larger amount of products available for export. It is said that a native farmer, with the hoe, cannot till more than an acre of land, while the efficient use of the plow would enable him to take care of several acres.

The Colonial Industrial Committee intends to introduce plow culture both in Togo and East Africa. The first experiment will be made in Togo, in the northern part of the region, where cattle can thrive, because it is free from the tsetse fly. It is proposed to establish a number of dépôts where plows may be kept for distribution, and to send Mr. J. W. Robinson, with assistants, to introduce the plow in this cotton-growing region and train the natives in the management of oxen and the way of plowing. The interest of the natives will be stimulated by premiums given to those who become proficient. After the movement has been well started it is thought that it will be spread by the natives themselves.

BOYD ALEXANDER RETURNS TO AFRICA.—Lieut. Boyd Alexander left England on Dec. 12 last, to explore the islands of São Thomé, Principe and Annobon, chiefly from a zoological point of view. He will have the assistance of his old collector, José Lopes, who was with him while on his last journey through Africa. In 1901 Lieut. Alexander studied the zoology of Fernando Po, the largest of the row of islands in the Gulf of Guinea, and showed that it possessed a rich and varied fauna, closely allied to that of the mainland, of which it, therefore, seems to have once formed part. He hopes by his work on the other islands to throw some light on their possible past relations with the continent. After four months in these islands the expedition will cross over to Victoria in the Cameroons, with the object of making a thorough zoological exploration of Cameroons Mountain, where Lieut. Alexander thinks it possible that he may meet with forms closely allied to those of the Ruwenzori Range. He hopes to examine also the interesting Manenguba Range, further in the interior, which rises to a height of some 10,000 feet. Ethnology and photography will also be features of the work during the twelve months which the party will probably spend in Africa. (*Geog. Jour.*, Jan., 1909.)

ASIA.

DR. ELLSWORTH HUNTINGTON RETURNS TO ASIA.—Dr. Huntington, Instructor in Geography at Yale University, wrote to the Society that he expected to sail on Feb. 10 for Southampton, and then go *via* Constantinople to Palestine. He will spend some time there in studying the Dead Sea with special reference to its fluctuations, both in the Glacial Period and in historic times, if any such have taken place. For this work he intends to take a folding canvas boat, for there are practically no boats on the Dead Sea. After leaving the Dead Sea, he will devote some time to getting a general idea of the geography of Palestine and to studying the ruins along the border of the Syrian Desert, to see what they may indicate as to the time when changes of climate have occurred.

On leaving Palestine he hopes to go up through the Syrian Desert to Aleppo and then to the lake region of central Asia Minor. There he will make the same kind of investigations as at the Dead Sea, using his folding boat to study the shores. In connection with the lakes he will examine the numerous ruins of the country. The entire summer will be spent among the lakes, in all probability. He expects to take with him an assistant, Mr. C. F. Graham, who has just finished his studies at Yale. They will return at the end of September.

LONGSTAFF'S NEW EXPEDITION TO THE HIMALAYAS.—Dr. T. Longstaff announces (*Geog. Jour.,* Jan., '09, p. 88) that next summer he will go to the Saltoro Glacier System in the Karakoram Range, and try to cross the long-closed Saltoro Pass to the headwaters of the Oprang River, an affluent of the upper Yarkand. There is no record of any crossing of the main Karakoram Range between the Mustagh and Karakoram passes, and we have no knowledge of the mountains northeast of K2, where, as has been pointed out by Col. Burrard, the great undiscovered peaks are most likely to exist. While Dr. Longstaff will try to climb any promising peak that offers, he attaches larger importance to the acquisition of some knowledge of the country across the main range. He will be accompanied by Lieut. Morris Slingsby.

CAPTAIN D'OLLONE'S JOURNEY IN EASTERN TIBET.—A communication from Captain d'Ollone's Expedition on the Chinese-Tibet frontier, printed in *La Géographie* (Nov., 1908), tells of an interesting journey across a wide tract between Sun-Pan-ting and Lan-Chou, where the leader avoided the routes of previous travellers as far as possible and secured some valuable results. He was able, by following down the valley of the Eul-tao Hwang-ho (Second Hwang-ho) to its junction with the main river, to fix the position of that point and also to throw further light on the remarkable bend of the Hwang-ho, which was in part laid down by Dr. Tafel. Marching along its valley for some days in a northwesterly direction, where the Hwang-ho was on its return course to the west after having passed the meridian of 102° on its easterly course, Captain d'Ollone then struck northeast for Lan-Chou and found a group of Mongols living among the Tibetans. He found that this region abounds with monasteries, subordinate to the great lamasery of Labrang, although the people in general display an independent and warlike bearing. He says the physical character of this region differs entirely from the more typical parts of Tibet. It lies at an altitude of 13,000 feet and forms a plain traversed by mountainous swells of no great height covered by grass and everywhere passable by horses. The inhabitants are a pastoral people living on horseback, and approaching the Aryan type. The Chinese call them Sifan, since they are neither Tibetans nor Mongols. The traveller and his companions encountered hostilities which nearly resulted in disaster to the expedition. The party, however, finally reached the Labrang Monastery, which they describe as much surpassing the famous one at Kumbum.

AUSTRALIA.

CAPITAL OF THE COMMONWEALTH OF AUSTRALIA.—The House of Representatives of the Commonwealth of Australia has voted to place the future capital in the district Yass-Canberra, in southeastern New South Wales. As the conflicting interests of New South Wales and Victoria have defeated earlier decisions as to the site of the capital, it is expected that the present proposal also will meet with opposition.

The federal capital, according to the Constitution, is to be in New South Wales not less than 100 miles from Sydney. Its territory is to contain at least 100 square miles, and the Crown lands in the area selected for the capital are to be given by New South Wales without payment. The capital *pro tem* is in Melbourne, and will remain there until its situation is finally decided upon and the building is ready for occupancy.

A commission to report upon the most suitable site was appointed in 1901. The commissioners recommended Tumut, which has a fine situation and climate, excellent water supply and adequate rail communications. It is also removed from the coast, and, therefore, safe from naval attack. The House of Representatives in October, 1903, recommended Tumut, but the Senate substituted Bombala, probably because the proximity of this situation to the coast would enable it to have independent access to the sea through Twofold Bay. When the matter again came up in 1904, both Houses selected Dalgety, on the Snowy River, near Bombala. Objections, however, were made to this proposal and nothing further has been done until the House lately announced Yass-Canberra as its choice.

EUROPE.

THE ITALIAN EARTHQUAKES.—Mr. R. D. Oldham, formerly superintendent of the Geological Survey of India, in an article on the great calamity in Calabria and Sicily (*Nature,* No. 2045, p. 287), compares it with the earlier great earthquakes in the same region, particularly with the terrible cataclysm of 1783, and concludes that as the earthquake of that year "was followed by sixty years' respite from destructive earthquake and the lesser one of 1638 by twenty-one years' respite, so the disaster of 1908, though it will be followed by a series of after shocks, some of which probably will be severe, may reasonably be expected to inaugurate a long era of comparative repose during which the population will have time to recover." Mr. Oldham adds that so long as the people prefer to huddle together in towns and villages which are villainously built and designed in defiance of every precaution which should be taken in an earthquake country, so long will every severe shock result in loss of human life and property.

An extended account in the BULLETIN of the recent calamity will be deferred until authentic data and scientific study supply the material for an authoritative record.

POLAR.

ANOTHER MELVILLE-BRYANT DRIFT CASK FOUND.—A cable despatch to the American press from Captain Roald Amundsen, Christiana, reports that a drift cask picked up on Nov. 3 on the island of Soro, Norway, has been identified as one of the Melville-Bryant polar casks liberated in the Arctic Ocean north of Alaska in 1899, 1900 and 1901. The cask contained a letter saying that it had been launched at Cape Bathurst, some ways east of the Mackenzie River Delta. In a letter to the Philadelphia *Press* Mr. Henry G. Bryant, through whose generosity this attempt to learn more about the currents of the north polar area became possible, writes that the cask referred to, No. 26, was launched by Captain R. J. Cumiskey of the steam whaler *Narwhal,* in 71° N., 128° 5′ W., off Cape Bathurst, on July 2, 1900. In his opinion, although only the terminal points of its voyage are known with certainty, it is more than probable that its drift carried it north and east past Prince Patrick Island and Grant Land and thence around or across the polar area, and eventually into the sea between Greenland and Spitzbergen, thus reaching the North Atlantic and Norway. Assuming that it travelled the most direct route, the distance traversed in the 8 years, 3 months and 10 days that have elapsed was approximately 2,400 nautical miles. If, however, it followed a more circuitous route, similar to those of the *Jeanette* and *Fram,* the mileage would be much greater. All of the casks thus far recovered have been picked up within the Arctic Circle.

Only four of the drift casks have thus far been reported in the seven or eight years since they were placed on the ice north of Alaska and Western Canada. One of them drifted from a point west-northwest of Point Barrow, Alaska, where it was placed in 1889, over a 2,500 mile course across the north polar area to the most northern point in Iceland. The journey of this cask did much to strengthen the belief in the existence of a central drift current across the unknown polar area. Two of the casks that failed to enter this drift were found ashore on points on the Siberian coast.

CLIMATOLOGY.

PNEUMONIA AND WEATHER.—The relation between the prevalence of pneumonia and weather conditions is a subject which has been much studied. Most writers have considered changes of temperature of great importance in predisposing persons to pneumonia. The disease is found almost everywhere, in the tropics probably quite as commonly as in colder latitudes, and at high altitudes as well as at sea-level. A greater frequency of pneumonia generally follows cold, damp weather, with marked changes of temperature, which lower the vitality and are conducive to chills. Hence, the disease is most prevalent in the colder months. Severe cold spells have often been noted as being followed by an increase of pneumonia, especially among elderly persons and children. One of the most recent investigations along the lines of medical climatology in relation to pneumonia is that of Dr. C. M. Richter, of San Francisco ("The Relation of Anticyclonic Weather to the Prevalence of La Grippe and Pneumonia on the Northern Hemisphere," *Journ. Amer. Med. Assoc.,* Aug. 22, 1908, Vol. LI, pp. 660-663). The author made a study of the pneumonia epidemics of Chicago and San Francisco for the five years, 1899-1904, in their relation principally to air pressure. He finds that pneumonia is not merely a concomitant of the cold-weather season, but that its prevalence depends on anticyclonic weather, summer and winter, and not on low temperature. Dr. Richter thinks that this relation to high pressure depends upon the quality of the air in anticyclones, which changes in conformity with changes in the activity of the sun, the prevalence of grip and pneumonia being subject to a specific quality of this air. Dr. Richter suggests several possible conditions of anticyclonic air which may be of importance in this connection: *e. g.*, the higher levels of the atmosphere are more directly affected by the sun's energy than the lower levels, and in anticyclones the air is descending from aloft; radio-activity, which varies according to pressure conditions; atmospheric electricity, and other factors may be concerned in the problem. R. DeC. W.

OCEANOGRAPHY.

INTERNATIONAL EXPLORATION OF THE ATLANTIC OCEAN.—At the Ninth International Geographical Congress, held in Geneva last summer, Sec. VI. was devoted to Oceanography, and among the papers read before this section were those of Prof. S. O. Pettersson of Stockholm and Prof. Schott of Hamburg, each relating to the need of inaugurating an exploration of the Atlantic on an international basis in respect of its physical and biological conditions. The substance of their suggestions is indicated below:

All deep-sea expeditions of later years have occupied themselves chiefly with the eastern half of the South Atlantic. No systematic deep sea research with modern instruments and by modern methods has been made in the western half of the North Atlantic since the *Challenger* Expedition, excepting some work by the U. S. vessel *Albatross*. Very little is known about the magnitude and laws of the variations of Atlantic currents in respect of strength or temperature. The non-periodic changes in the temperature of these currents, particularly in the Gulf Stream, must be looked for in that Stream itself. A study of the primary causes of these changes is of both scientific and great practical interest, for it is probable that they have a far-reaching influence upon the weather and vegetation of Europe.

The investigation of the physical conditions of the higher strata of air above the ocean is the work before oceanographical expeditions on the Atlantic. The highways of barometric depressions between the forties and fifties of latitude are especially important for Europe, because it is mainly the direction and frequency of these great atmospheric whirls which decide the character of European weather.

Fishery investigations, extended to the open Atlantic, may supply many surprises. The young eels of Northern Europe, for example, hitherto unknown as to form, have at last been found to the west of Ireland in depths of 500 fathoms; Mr. Hjort's investigations also have proved that other fish in its young stage are found at great depths far away from land. Furthermore, a careful study of changes in Atlantic plankton, with regard to sea food and place, is of great importance, because plankton, being the original food of the sea, influences the wanderings of all fish.

The writers recommend the following parts of the Atlantic Ocean for the earliest investigations:

A straight line from Fair Isle or the Pentland Firth to the Strait of Belle Isle across the Labrador Current.

The highway between the English Channel and the east coast of the United States in the forties and fifties of latitude. The ships are constantly traversing this region, it is scientifically one of the least-known parts of the oceans. Though cable steamers have sounded the bottom everywhere, with the relief of the bottom our knowledge is nearly at its end.

A line between a point on the coast of Morocco and one on the coast of the United States, say Cape Hatteras. It appears that on this line important dynamical factors are at work greatly influencing the oceanic circulation. Soundings along this line would cut the "Cold Wall," the Gulf Stream, the northern part of the Sargasso Sea and the cold water on the coast of Africa which rises to the surface there from greater depths under the influence of the off-shore winds.

Corresponding series of soundings in a north-south direction or north-east-south-west towards Pará, cutting the Guinea Current, if possible, would complete the picture of the North Atlantic circulation and offer material for representing and calculating quantitatively the hydro-dynamic fields existing in this part of the ocean.

The writers remind the reader that, in the South Atlantic, the Argentine Republic and Cape Colony are now active in the investigation of the neighbouring seas, and these factors must be taken into account when an international combination is formed. The interests of the governments of the Atlantic states of Europe, Africa and America should be first solicited; also, the interest and cooperation of private persons, polar expeditions, owners of good-sized steam yachts and the great steamship companies, the latter being especially able to render important assistance.

The Congress adopted a resolution declaring that "the physical and biological investigation of the Atlantic Ocean is one of the most pressing problems in oceanography." The resolution goes on to say that the civilized nations of Europe, Africa and America should attack this problem in the great interests of the Atlantic shipping, of fisheries and of meteorology. The chairman of the Section Oceanography was authorized to form a "Committee for exploring the Atlantic Ocean," on which various nationalities shall be represented.

THE PHYTO-PLANKTON OF THE SEA.—In the *Revue Génerale des Sciences* for August 30, Professor Mangin publishes an interesting general article on what he picturesquely calls the floating pastures of the sea, that is to say, the minute free-living plants often so extraordinarily abundant in the surface-water of the sea. It is, of course, these minute plants which colour the water at certain seasons black, red, green, or ochre-coloured, and have thus given rise to the names of some of the seas and oceans of the globe. For example, a red alga, known as *Trichodesmium erythraeum,* communicates its characteristic reddish tint to the Red Sea. The great interest of these minute forms of life is, of course, that ultimately they form the basis of the food of fishes, and as they change in position or in character according to the latitude and the seasons, they are of great importance in connection with the scientific study of fisheries. Just as on land the large carnivora are necessarily attached to the great natural or artificial areas of herbage on which feed their natural prey, the herbivora, so the fish follow the migrations of the phyto-plankton. (*Scot. Geog. Mag.,* Vol. 25, No. 1, 1909.)

PHYSICAL GEOGRAPHY.

THE FORMATION OF NIEVES PENITENTES.—Dr. William Hunter Workman has written a paper on the formations known as "Nieves Penitentes," which have heretofore been described chiefly by explorers of the Andes and were long regarded as peculiar to the South American mountains from the equator to 35° 40′ S. Later, however, Hans Meyer and C. Uhlig found them on Kilimanjaro in Africa, and while Mrs. Bullock Workman and Dr. Workman were exploring the Nun Kun Mountain group in Suru, Cashmere, during the summer of 1906, they found large portions of the névé-covered surface of the Shafat glacier, at altitudes of from 16,000 to 18,500 ft., above the line of freezing at night, thickly covered with these formations. He is not aware that they are found in any other part of the Himalayas.

In his paper published in the *Alpine Journal,* May, 1908, he says that the "Nieves Penitentes," as he saw them in the Himalayas, varied in height from 8 inches to 3 feet and had the shape of wedges or pyramids flattened at the sides with curling, fluted crests all turned in the same direction. They were arranged in parallel lines on the glacier and diagonally to its axis, and were composed of granular snow, hard frozen in the morning, but softening more or less under the heat of the sun. No ice was found in them.

After presenting the information he collected, Dr. Workman gives his conclusions as to their formation, which seems to depend on two conditions—(1) the existence of a strong wind blowing constantly from the same direction, driving the snow into wavelets and ridges usually parallel to one another and condensing it into compact masses at foci a little removed from one another; and (2) a prolonged period of fine weather following, during which the softer portions are melted away by the sun's heat, both direct and reflected, leaving the denser parts standing in the well-known shapes. In stormy seasons the ridges, after being formed, are protected from the sun's action by new snow under which they are buried and no nieves are developed.

SEISMIC SEA WAVES.—The Pilot Chart of the North Pacific Ocean for Feb., 1909, discusses seismic sea waves such as accentuated the recent great earthquake calamity in Calabria and Sicily. According to the descriptions of this disturbance, the sea, after the earthquake shock, at first receded for some distance from the shores and then a great wave, about 32 feet high, advanced upon the shore with appalling power and destructiveness.

"There are two general classes of seismic sea waves. The first is due to the sinking of the sea bottom and is marked by a withdrawal of the water after the earthquake, followed later by the return of great waves. The second is due to the uplift of the bottom and is characterized by a sudden rise of the sea without any previous withdrawal from the shore. Most of the historical inundations of the sea have been due to waves of the first class.

"The phenomena usually noted are: First, An earthquake; second, after a short interval, the sea is observed to be draining away, laying bare the bottom where it is ordinarily deep enough for ships to enter; third, after an interval of an hour or so, the sea is seen to be turning as a mighty wave, washing everything before it and thus carrying ships shoreward and stranding them; fourth, having once swept to shore, the sea again withdraws and lays bare the harbour as before and after about the same interval again returns as a second great wave. This periodic movement of the sea may be kept up for some time and quiet may not be restored for a day or two.

"Among the well-known historical sea waves of the first class, we shall cite only a few typical cases: As that which overwhelmed Helike in 373 B. C.; the waves at Callao in 1724 and 1746; the wave following the Lisbon earthquake in 1755; the waves of Arica in 1868, and Iquique in 1877; the wave on the Japanese coast in 1896. In all these cases the water first withdrew from the shore—not suddenly, but slowly, as in the draining away of a tide, though somewhat more rapidly. This, of course, indicated that the sea bottom had sunk, and the water was draining away to fill up the depression in the level caused by the falling of the bottom. When the currents meet at the centre an elevation is produced by their mutual impact, and when this collapses under gravity the first great wave comes ashore. The elevation then subsides into a depression as at first, and the currents again flow in and fôrce up the level a second time; and, with the second collapse, another wave is sent ashore; and so the oscillation of the sea continues, sometimes for a day or two, before it finally quiets down.

"Seismic sea waves of the second class are produced by the uplift of the sea bottom into ridges or submarine plateaus and islands. In such cases the water rises suddenly without previously withdrawing from the shore.

"The most disastrous in its effects of any of the examples of the first class is that which occurred in connection with the Lisbon earthquake of 1755. The seismic disturbance to which this wave was due occurred under the sea off the coast of Portugal in lat. 30° N. and long. 11° W. The water drained out from the land to such an extent that the bed of the river Tagus was left dry, and, half an hour after the most severe shocks were over, a series of waves 30 to 60 feet in height broke on the shore, and, sweeping over the land, caused the death of about 100,000 persons and enormous destruction of property. These waves extended along the coast, engulfing the villages for several miles to the south and reaching as far as Morocco. The shock was felt at Oporto, Cadiz, Madrid, and Funchal, and waves were propagated throughout the Atlantic to the coasts of America. At Cadiz the waves rose to 60 feet, at Madeira to 12 feet, and the sea was so disturbed 120 miles west of St. Vincent that vessels were violently shaken and men standing on deck were thrown down."

After the great earthquake at Lima on Oct. 28, 1724, the water withdrew from the coast and was followed by a wave about 80 feet high, which swept over Callao.

VARIOUS.

MR. J. G. BARTHOLOMEW, head of the Geographical Institute, the famous map house of Edinburgh, has been recently appointed an honourary Corresponding Member of the Société de Géographie of Paris.

THE UNITED STATES GEOGRAPHIC BOARD has just issued, in a pamphlet of 38 pp., all the decisions with regard to geographical names which it rendered from July 1st, 1906, to July 1st, 1908.

ANNUAL MEETING OF THE AMERICAN GEOGRAPHICAL SOCIETY.

The Annual Meeting of the Society was held at the Engineering Societies' Building, No. 29 West Thirty-ninth Street, on Tuesday, January 26th, 1909, at 8:30 o'clock P.M.

President Archer M. Huntington in the chair.

In opening the meeting President Huntington made the following remarks:

"It is my reluctant duty to recall to you to-night for the last time the name of

George C. Hurlbut. But if it be not my privilege to bring that name to your memories hereafter, I know well that it will not pass and be soon forgotten. A friend has left us, an old and well-tried friend, kind and gentle and faithful to all his trusts, who worked ever with that brave silence which is the gift of modesty founded upon ability and love of truth. Of the wealth, which is so-called, he had little; but of that wealth which the soul stores up out of the essential goodness of the world through patient living, he had a store untold. And of that glorious wealth he gave us much. So in his departure we are poorer, but the love for our friend has grown more deep."

The following persons, recommended by the Council, were elected Fellows:

W. Kirkpatrick Brice, William F. Keyes,
Charles G. Goddard, Francis Trevelyan Miller,
Edward A. Le Roy, Jr.

The Annual Report of the Council was presented and read by the Secretary, Mr. Levi Holbrook:

January 26th, 1909.

To the American Geographical Society:

The Council respectfully submit the following report for the year 1908:

An appalling disaster has befallen the Society of which appropriate notice is taken elsewhere. Here it may simply be stated that on Christmas Day the librarian, George C. Hurlbut, was killed, and the assistant librarian, Ilione Hurlbut, most severely maimed and disabled in an automobile accident.

The number of Fellows on the 1st of January was 1,319. The additions during the year were 28. The losses by death, resignation, etc., were 109, and the total Fellowship on the 31st of December was 1,238, of which number 351 were Life Fellows.

The additions to the Library number 3,983; Periodicals and Pamphlets, 3,220; Books, 568; Maps and Charts, 194, and 1 Atlas.

Six regular meetings of the Society were held at which addresses were made by

Frederick Monsen, Homer B. Hurlbert,
John Barrett, Prof. Albrecht Penck,
Rowland Dwight Grant, William Elliot Griffis.

There have been published in the BULLETIN, besides the Record, the Map Notes and the Book Reviews, forty original papers.

An exhibition of school maps and other appliances used in schools by teachers of geography was opened in the Society's house on December 21st and is still open to teachers and the public.

The Society has received $30,000, bequeathed to it by Madame de Vaugrigneuse, in memory of our late Vice-President, Francis Aquila Stout, which, in accordance with the terms of the will, has been invested as the "Francis A. Stout Memorial Fund."

For the condition of the finances, reference is respectfully made to the report of the Treasurer, herewith presented.

All of which is respectfully submitted.

CHANDLER ROBBINS,
Chairman.

L. HOLBROOK,
Secretary.

The report of the Treasurer, Mr. Henry Parish, Jr., for the year 1908, was then read:

GENERAL ACCOUNT.

The Treasurer respectfully reports:

On January 1st there was a credit balance of		$3,968.85
During the year there have been received for Fellowship Dues, Sales of Publications, Interest on Investments, &c.	$24,123.87	
Legacies and Donations	33,500.00	57,623.87
		$61,592.72
There have been expended for Salaries, Meetings, Library, Publications, House Expenses, Insurance, Postage, &c.	$23,790.52	
Invested in guaranteed mortgages	33,200.00	56,990.52
Credit balance December 31st, 1908		$4,602.20

Respectfully submitted,
HENRY PARISH, JR.,
Treasurer.

The reports were approved and ordered on file.

The report of the Committee charged with the duty of selecting candidates for the offices to be filled was presented and read:

NEW YORK, December 17th, 1908.

The Committee appointed November 19th, 1908, to nominate and recommend suitable persons to be elected in January, 1909, to fill vacancies then existing in its offices, respectfully report that they recommend the election of the following-named persons to the offices designated:

		Term to expire in
President	ARCHER M. HUNTINGTON,	1910
Vice-President	ANTON A. RAVEN,	1912
Treasurer	HENRY PARISH, JR.,	1910
Foreign Corresponding Secretary	WILLIAM LIBBEY,	1912
Recording Secretary	HAMILTON F. KEAN,	1910
Councillors	FRANCIS M. BACON, J. HAMPDEN ROBB, CHANDLER ROBBINS, BANYER CLARKSON, GEORGE W. FOLSOM,	1912

Respectfully submitted,
ARCHIBALD D. RUSSELL,
JOHN GREENOUGH,
PAUL TUCKERMAN,
Committee.

The vote of the Society was unanimously in favour of the persons recommended by the Council, and they were declared duly elected.

The President then introduced the speaker of the evening, Mr. Herman Montagu Donner, who addressed the Society on "Finland, the Lake Country of Scandinavia." Stereopticon views were shown.

On motion, the Society adjourned.